1. A water treatment system for treating water, said water treatment system comprising:

a primary water treatment station; and

a solid-based sulfurous generator downstream from said primary water treatment station for producing aqueous sulfurous acid for further treatment of the water.

2. The apparatus according to claim 1, further including a control system for controlling the water flow rate through the solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.

3. The apparatus according to claim 2, wherein said control system includes a pH sensor for ascertaining the pH of the water being treated; a controller connected to said pH sensor for receiving a signal representative of the pH, comparing said signal to a set point for a desired water pH, and providing an output control signal, which affects a flow control means connected to said controller for adjusting the water flow rate through said solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.

4. The apparatus according to claim 3, wherein said flow control means includes a variable frequency drive for adjusting the pump speed to control the flow rate of treated water through said solid-based sulfurous generator, said pump being located between said primary water treatment station and said solid-based sulfurous generator.

5. The apparatus according to claim 3, wherein said flow control means includes a variable frequency drive for adjusting the flow rate through a valve to control the flow rate of treated water through said solid-based sulfurous generator, said valve being located between said primary water treatment station and said solid-based sulfurous generator.

6. The apparatus according to claim 2, wherein said control system includes a chlorine sensor for ascertaining the chlorine content of the water being treated, a controller connected to said chlorine sensor for receiving a signal representative of the chlorine, comparing said signal to a set point for a desired water chlorine content, and providing an output control signal to a flow control means connected to said controller for adjusting the water flow rate through said solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.

7. The apparatus according to claim 2, wherein said control system includes a sensor for determining the flow rate of water into said primary water treatment station, a controller connected to said flow rate sensor for receiving a signal representative of the flow rate and providing an output control signal to a flow control means connected to said controller for adjusting the water flow rate through said solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.

8. The apparatus according to claim 2, wherein said control system further includes feed load cell for determining the weight of sulfur being fed to said solid-based sulfurous generator.

9. The apparatus according to claim 8, further including a timer circuit for calculating the feed burn rate based on the change in the output of the feed load cell over time.

10. The apparatus according to claim 2, wherein said control system further includes a flow meter for measuring the flow rate of water through said solid-based sulfurous generator.

11. The apparatus according to claim 2, wherein said control system further includes a timer for selectively starting and stopping said solid-based sulfurous generator.

12. The apparatus according to claim 1, wherein said primary waste treatment station includes settling tanks and holding cells.

13. The apparatus according to claim 1, further including a secondary water treatment station downstream from said primary water treatment station.

14. The apparatus according to claim 13, wherein said secondary water treatment station includes aeration tanks and clarifiers.

15. The apparatus according to claim 13, further including a tertiary water treatment station downstream from said primary water treatment station.

16. An apparatus for producing aqueous sulfurous acid, said apparatus comprising:

a solid-based sulfurous generator; and

a hydraulic air inlet shut-off valve safety system for automatically reducing the combustion air to said sulfurous generator when water is not delivered to said solid-based sulfurous generator.

17. The apparatus according to claim 16, wherein said solid-based sulfurous generator includes a solid sulfur supply, a burning chamber for burning said solid sulfur, an air inlet for providing combustion air to said burning chamber, and a hot SO_2 gas outlet.

18. The apparatus according to claim 17, wherein said burning chamber further includes a one piece, water-cooled bottom plate for solidifying molten sulfur in said burning chamber to form a seal.

19. The apparatus according to claim 18, wherein said sealing bottom plate is removable for cleaning said burning chamber.

20. The apparatus according to claim 17, wherein said burning chamber further includes an igniter.

21. The apparatus according to claim 20, wherein said igniter is a cal-rod inserted into said burning chamber.

22. The apparatus according to claim 17, further including a mixing and collection chamber connected to said hot SO_2 gas outlet.

23. The apparatus according to claim 17, further including a negative pressure source downstream from said hot SO_2 gas outlet for drawing the combustion air into said burning chamber.

24. The apparatus according to claim 23, wherein said negative pressure source is a venturi.

25. The apparatus according to claim 23, wherein said negative pressure source is an air amplifier.

26. The apparatus according to claim 23, wherein said negative pressure source is a water aspirator.

27. The apparatus according to claim 26, wherein said water aspirator is a kinetic jet-type aspirator.

28. The apparatus according to claim 27, wherein said kinetic jet-type aspirator has an offset water inlet port.

29. The apparatus according to claim 17, further including a scrub tower downstream from said hot SO_2 gas outlet for capturing the SO_2 gas.

30. The apparatus according to claim 29, wherein said scrub tower includes a high surface area reaction surface and a supply of water for reacting with the SO_2 gas.

31. The apparatus according to claim 30, wherein said high surface area reaction surface is a moisture-resistant material.

32. The apparatus according to claim 31, wherein said moisture-resistant materials are rashing rings formed from plastic tubing.

33. The apparatus according to claim 32, wherein said rashing rings have a length between about 0.5 and 1.5 inches and a diameter between about 0.5 and 1.5 inches.

34. The apparatus according to claim 30, wherein the flow rate of said water supply is greater than about 80 GPM at greater than about 20 PSI.

35. The apparatus according to claim 29, wherein said scrub tower further includes a vapor recovery means.

36. The apparatus according to claim 35, wherein said vapor recovery means includes an air inlet for providing additional air into said scrub tower, an air mover for removing air and vapors from said scrub tower, and a percolation chamber for receiving and dissipating said air and vapors.

5

37. The apparatus according to claim 36, wherein said air mover is a water aspirator.

38. A water treatment system for treating water, said water treatment system comprising:

a primary water treatment station;

a solid-based sulfurous generator downstream from said primary water treatment station for producing aqueous sulfurous acid for further treatment of the water, said solid-based sulfurous generator includes a hydraulic air inlet shut off valve safety system for automatically reducing the combustion air to said sulfurous generator if water stops being delivered to said sulfurous generator; and

a control system for monitoring the pH of the treated water to adjust the water flow rate through said solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.

39. The apparatus according to claim 38, wherein said control system includes a pH sensor for sensing the pH of the water being treated, a controller connected to said pH sensor for receiving a signal representative of the pH, comparing said signal to a set point for a desired water pH, and providing an output control signal to a flow control means connected to said controller for adjusting the flow rate of water through said solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.

40. The apparatus according to claim 39, wherein said flow control means includes a variable frequency drive for controlling the speed of the pump that delivers water to said solid-based sulfurous generator, said pump being located between said primary water treatment station and said solid-based sulfurous generator.

41. The apparatus according to claim 39, wherein said flow control means includes a variable frequency drive for controlling the water flow rate through a valve, said valve being located between said primary water treatment station and said solid-based sulfurous generator.

42. The apparatus according to claim 38, wherein said control system includes a chlorine sensor for sensing the chlorine content of the water being treated, a controller connected to said chlorine sensor for receiving a signal representative of the chlorine, comparing said signal to a set point for a desired water chlorine content, and providing an output control signal to a flow control means connected to said controller for adjusting the water flow rate through said solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.

43. The apparatus according to claim 38, wherein said control system further includes a feed load cell for determining the weight of sulfur being utilized by said solid-based sulfurous generator.

44. The apparatus according to claim 43, further including a timer circuit for calculating the burn rate based on the change in the output of the feed load cell over time.

45. The apparatus according to claim 38, wherein said control system further includes a flow meter for measuring the flow rate of water through said solid-based sulfurous generator.

46. The apparatus according to claim 38, wherein said control system further includes a timer for selectively starting and stopping said solid-based sulfurous generator.

47. The apparatus according to claim 38, wherein said primary wastewater treatment station includes settling tanks and holding cells.

48. The apparatus according to claim 38, further including a secondary water treatment station downstream from said primary water treatment station.

49. The apparatus according to claim 48, wherein said secondary water treatment station includes aeration tanks and clarifiers.

50. The apparatus according to claim 48, further including a tertiary water treatment station downstream from said primary water treatment station.

51. The apparatus according to claim 38, wherein said solid-based sulfurous generator includes a solid sulfur supply, a burning chamber for burning said solid sulfur, an air inlet for providing combustion air to said burning chamber, and a hot SO_2 gas outlet.

52. The apparatus according to claim 51, wherein said burning chamber further includes a one piece, water-cooled bottom plate for solidifying molten sulfur in said burning chamber to form a seal.

53. The apparatus according to claim 52, wherein said sealing bottom plate is removable for cleaning said burning chamber.

54. The apparatus according to claim 51, wherein said burning chamber further includes an igniter.

55. The apparatus according to claim 54, wherein said igniter is a cal-rod inserted into said burning chamber.

56. The apparatus according to claim 51, further including a mixing and collection chamber connected to said hot SO_2 gas outlet.

57. The apparatus according to claim 51, further including a negative pressure source downstream from said hot SO_2 gas outlet for drawing the SO_2 gas from said burning chamber and fresh combustion air into said burning chamber.

58. The apparatus according to claim 57, wherein said negative pressure source is a venturi.

59. The apparatus according to claim 57, wherein said negative pressure source is an air amplifier.

60. The apparatus according to claim 57, wherein said negative pressure source is a water aspirator.

61. The apparatus according to claim 60, wherein said water aspirator is a kinetic jet-type aspirator.

62 The apparatus according to claim 61, wherein said kinetic jet-type aspirator includes an offset air inlet port.

63. The apparatus according to claim 61, further including a scrub tower downstream from said hot SO_2 gas outlet for capturing the SO_2 gas.

64. The apparatus according to claim 63, wherein said scrub tower includes a high surface area reaction surface and a supply of water for reacting with the SO_2 gas.

65. The apparatus according to claim 64, wherein said high surface area reaction surface is a moisture-resistant material.

66. The apparatus according to claim 65, wherein said moisture-resistant materials are rashing rings formed from plastic tubing.

67. The apparatus according to claim 66, wherein said rashing rings have a length between about 0.5 and 1.5 inches and a diameter between about 0.5 and 1.5 inches.

68. The apparatus according to claim 64, wherein the flow rate of said water into said scrub tower is greater than about 80 GPM at greater than about 20 PSI.

69. The apparatus according to claim 63, wherein said scrub tower further includes a vapor recovery means.

70. The apparatus according to claim 69, wherein said vapor recovery means includes an air inlet for providing additional air into said scrub tower, an air mover for removing air and vapors from said scrub tower, and a percolation chamber for receiving and dissipating said air and vapors.

71. The apparatus according to claim 70, wherein said air mover is a water aspirator.

72. A method for treating water in a primary water treatment station, said method comprising the steps of:

producing aqueous sulfurous acid for further treatment of the water by a solid-based sulfurous generator downstream from said primary water treatment station; and

monitoring the pH of the water being treated to control the water flow rate through said solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the water being treated.